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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,094	09/24/2003	Juho Jumppanen	17048	6294

23389 7590 12/15/2004

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EXAMINER

BRUNSMAN, DAVID M

ART UNIT PAPER NUMBER

1755

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/670,094	JUMPPANEN ET AL.	
	Examiner	Art Unit	
	David M Brunzman	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-10, 12, 14-22, 27, 32 and 37-41 is/are rejected.
- 7) ☐ Claim(s) 5, 11, 13, 23-26, 28-31, 33-36 and 42-44 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20031219</u> . | 6) <input type="checkbox"/> Other: ____  |

Art Unit: 1755

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 8, 9, 27, 32, 39 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 8, 9, 27 and 32 recite a "solution derived from biomass". The scope of this term is indefinite in that it is not set forth the extent of processing that may take place while the material may yet be described as "derived". For example, an organic material burnt to carbon, could still be described as "derived". The terms L-fucose and L-rhamnose in claims 39 and 40 lack antecedent basis in claim 1.

Claims 43-44 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim may not depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 43-44 will not be further treated on the merits.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 1755

Claims 1, 3, 4, 7, 10, 12, 14, 18, 19 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4758283.

Column 4, line 35 through column 5, line 9 of the reference teaches production of L-rhamnose by hydrolyzing a biomass material, passing the hydrolysate through a Na<sup>+</sup> cation exchange resin to isolate an L-rhamnose sugar fraction, desalting the fraction with multiple passes through a cation exchange resin and an ion exchange resin, evaporating and cooling the purified solution to crystallization with the assistance of ethanol. See also, example 4.

Claims 1-4, 6, 7, 10, 12, 14, 17, 18 and 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6663717.

The reference teaches a method of forming a deoxy sugar product comprising hydrolysis of sugar beet pulp to obtain an aqueous solution of pectin and pectic sugars including rhamnose and fucose, passing the solution through a Ca<sup>2+</sup> cation exchange resin to isolate a pectin fraction and a sugar fraction, passing the sugar solution through a Na<sup>+</sup> cation resin to isolate a L-arabinose based sugar fraction in water and crystallizing out the sugar component.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6663717, as applied above, in view of US 4758283.

The difference between claim 19 and the primary reference is the crystallization method. The primary reference does not limit the method. US 4758283 (column 5, lines 1-9) teach deoxy sugars can be crystallized from aqueous solution by evaporation and cooling.

Art Unit: 1755

It would have been obvious to one of ordinary skill in the art to use the procedure of 4758283 because it is shown to be effective to crystallize sugar from an aqueous solution. Claims 37 and 38 recite washing the crystals formed with a washing agent including water. It would have been obvious on its face to wash the crystals because the term wash itself indicates removal of impurities and water is here recognized as notorious as a washing agent.

Claim 41 is rejected under 35 U.S.C. 102(b) as being anticipated by the Merck Index.

Page 4306 of the Merck Index teaches D-fucose as needle shaped crystals melting at 144 C.

Claims 1, 6, 7 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Wong et al.

The reference teaches passing a solution of 90% L-fucose and 10% L-fuculose through Ba<sup>2+</sup> cation exchange resin to isolate pure L-fucose. See the first paragraph of page 7361.

Claims 1-4, 7, 10, 12, 14-16, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 02/02739.

Examples 4-8 of the reference teach a process wherein a rhamnose containing birch wood pulping liquor hydrolysate is passed through a Na<sup>+</sup> strong acid cation exchange resin to produce a salt fraction and a xylose/sugar fraction including rhamnose and arabinose. The xylose fraction is separated in a weak acid Na<sup>+</sup> cation exchange resin to obtain a rhamnose fraction containing xylose, arabinose and other sugars. The rhamnose fraction is further passed through a Na<sup>+</sup> weakly acid cation exchange resin and a Ca<sup>2+</sup> strong acid cation exchange resin to further isolate the rhamnose. The final rhamnose (aqueous) syrup is evaporated by boiling and cooled to crystallize.

Art Unit: 1755

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M Brunsman whose telephone number is 571-272-1365. The examiner can normally be reached on M, W, F, Sa; 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell can be reached on 571-272-1362. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David M Brunsman  
Primary Examiner  
Art Unit 1755



DMB